

**DECISION
AND
FINDING OF NO SIGNIFICANT IMPACT**

**ENVIRONMENTAL ASSESSMENT – MANAGING DAMAGE AND THREATS ASSOCIATED
WITH INVASIVE PATAS AND RHESUS MONKEYS IN THE COMMONWEALTH OF
PUERTO RICO**

I. INTRODUCTION

The United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS) program, in cooperation with the Puerto Rico Department of Natural and Environmental Resources (DNER), the Puerto Rico Department of Agriculture (PRDA), and the United States Fish and Wildlife Service (USFWS) has prepared an Environmental Assessment (EA) entitled “*Managing damage and threats associated with invasive patas and rhesus monkeys in the Commonwealth of Puerto Rico*” (USDA 2008). The EA was developed, in consultation with the USDA, APHIS, Animal Care (AC) program, to analyze the potential environmental and social impacts to the quality of the human environment from resolving damage and threats associated with non-native monkeys to agricultural resources, property, natural resources, and human safety in the Commonwealth of Puerto Rico. The EA documents the need for monkey damage management in the Commonwealth and assesses potential impacts on the human environment of three alternatives to address that need. WS’ proposed action in the EA would continue an integrated damage management program to fully address the need to manage damage associated with rhesus monkeys (*Macaca mulatta*) and patas monkeys (*Erythrocebus patas*) while minimizing impacts to the human environment.

The EA was prepared to: 1) facilitate planning and interagency coordination, 2) streamline program management, 3) evaluate the potential environmental consequences of the alternatives related to the issues of managing damage caused by non-native monkeys, and 4) clearly communicate to the public the analysis of individual and cumulative impacts. This Decision ensures WS’ actions comply with NEPA, with the Council on Environmental Quality (40 CFR 1500), and with APHIS’ NEPA implementing regulations (7 CFR 372). All monkey damage management activities, including disposal requirements, are conducted consistent with: 1) the Endangered Species Act of 1973, 2) New Wildlife Act of Puerto Rico (Law #241), 3) Executive Order (EO) 12898¹, 4) EO 13045², 5) EO 13112³, and 6) federal, Commonwealth, and local laws, regulations and policies. Appendix B of the EA contains a further discussion on compliance with federal and Commonwealth laws and regulations (USDA 2008).

Issues related to the monkey damage management program were initially developed by an interagency team comprised of personnel from WS, DNER, PRDA, USFWS, and AC. Issues were defined and preliminary alternatives were identified through the interagency team. The pre-decisional EA was made available to the public for review and comment through notices published in local media and through direct notification of interested parties. Comments from the public involvement process were reviewed for substantive issues and alternatives which were considered in developing this Decision for the EA.

¹ Executive Order 12898 promotes the fair treatment of people of all races, income levels, and cultures with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

² Executive Order 13045 ensures the protection of children from environmental health and safety risks since children may suffer disproportionately from those risks.

³ Executive Order 13112 states that each federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law; 1) reduce invasion of exotic species and the associated damages, 2) monitor invasive species populations, provide for restoration of native species and habitats, 3) conduct research on invasive species and develop technologies to prevent introduction, and 4) provide for environmentally sound control, promote public education on invasive species.

WS is authorized by law to reduce damage caused by wildlife through the Act of March 2, 1931 (46 Stat. 1468; 7 U.S.C. 426-426b), as amended and the Act of December 22, 1987 (101 Stat. 1329-331, 7 U.S.C. 426c). Wildlife damage management is the alleviation of damage caused by or related to the presence of wildlife and is regarded as an integral part of wildlife management (The Wildlife Society 1992). The goal of wildlife damage management conducted by WS is to respond to requests for assistance to manage damage and threats to human safety caused by wildlife. The authorities of the USFWS, the DNER, the PRDA and AC are discussed in Appendix B of the EA (USDA 2008)

II. PUBLIC INVOLVEMENT

The pre-decisional EA was prepared and released to the public through legal notices published for three consecutive days in the *San Juan Star* and the *El Nuevo Dia* beginning on July 21, 2008. A notice of availability and the pre-decisional EA were also posted on the APHIS website at http://www.aphis.usda.gov/wildlife_damage/nepa.shtml for review and comment beginning on July 21, 2008. A letter of availability was also mailed directly to agencies, organizations, and individuals with probable interest in monkey damage management in the Commonwealth. The public involvement process ended on August 22, 2008. WS received two comment letters during the public involvement period. A comment letter was also received shortly after the comment period had ended which was also evaluated. WS' responses to comments received are attached in Appendix A of this document. All documents associated with the public involvement period are maintained at the WS' state office in Florida⁴.

III. MONITORING

The WS' program will annually review monkey damage management activities in the Commonwealth to ensure WS' actions are within the scope of analyses provided in the EA. Those annual monitoring reports will document WS' activities while discussing any new information that becomes available since the completion of the EA and the last monitoring report. If WS' activities, as identified in the annual monitoring reports, are outside the scope of the analyses in the EA or if new issues are identified from available information, further analyses would occur and to the degree as identified by those processes pursuant to NEPA.

IV. AFFECTED ENVIRONMENT

Primary activities to manage invasive monkeys in Puerto Rico are likely to occur in the core area in southwest Puerto Rico described by González-Martínez (1995) and those areas described by the DNER where patas and rhesus monkeys are well established (see section 2.2 of the EA (USDA 2008)). The core area described by González-Martínez (1995) includes the Sierra Bermeja mountain range of southwestern Puerto Rico where rhesus and patas monkeys were found occupying an area encompassing 125 km². A group of rhesus monkeys were also observed in the Coutuí sector of San Germán which is 10 km north of the Sierra Bermeja range in southwest Puerto Rico (González-Martínez 1995). Currently, the range of monkey troops is approximately 800 km² in southwestern Puerto Rico based on information received from the DNER (see section 2.2 of the EA). Monkeys are considered an invasive species in Puerto Rico that can have negative impacts on resources where they occur (see Appendix B of the EA (USDA 2008)). Therefore, activities to prevent or reduce damage associated with monkeys could occur outside the core area when a request for assistance is received.

Activities could be conducted in urban and rural areas where invasive patas and rhesus monkeys are causing or may cause damage and are of concern to landowners/managers, city governments, and/or

⁴Copies of the public comments are available upon request from USDA/APHIS/WS 2820 East University Avenue, Gainesville, Florida 32641.

resource managers. Management areas may include U.S. government land, including National Wildlife Refuges owned or managed by the USFWS in Puerto Rico, property owned or managed by the Commonwealth, and city, private, or other lands, where assistance has been requested by a landowner or manager to protect human health and safety, agriculture, alleviate nuisance issues, and reduce impacts to wildlife species from invasive patas and rhesus monkeys. Management areas could also include property in or adjacent to identified sites where invasive patas and rhesus monkeys pose a threat to human health and safety. Invasive monkey damage management would be conducted when requested by a landowner or manager and only on properties where a cooperative service agreement or other comparable document is in place.

V. MAJOR ISSUES

The EA describes in detail the issues considered and evaluated in Chapter 2 (USDA 2008). In addition to the identified major issues considered in detail, ten issues were considered but not in detail, with rationale provided in the EA (USDA 2008). The following issues were identified as important to the scope of the analysis (40 CFR 1508.25) with each alternative evaluated in the pre-decisional EA relative to the impacts on the major issues:

- Issue 1 - Effects on Invasive Monkey Populations in Puerto Rico
- Issue 2 - Effects on Non-target Species' Populations, Including T&E Species
- Issue 3 - Effects of Management Methods⁵ on Human Health and Safety
- Issue 4 - Humaneness of Management Methods
- Issue 5 - Effects of Management on the Aesthetic Values of Targeted Species

VI. ALTERNATIVES THAT WERE FULLY EVALUATED

The following three alternatives were developed to respond to the issues identified in Chapter 2 of the EA (USDA 2008). A detailed discussion of the effects of the alternatives on the issues is described in the EA; below is a summary of the alternatives.

Alternative 1 – Integrated Wildlife Damage Management (Proposed Action/No Action)

The proposed action would continue the current program of employing an integrated damage management approach using effective methods, as appropriate, to reduce conflicts associated with invasive monkeys in the Commonwealth. An integrated damage management strategy would be recommended and used, encompassing the use of practical and effective methods of preventing or reducing damage while minimizing harmful effects of damage management measures on people, other species, and the environment. Under this alternative, WS and cooperating agencies would provide both technical assistance and operational damage management services. Non-lethal methods would be given first consideration in the formulation of each damage management strategy, and would be recommended or implemented when practical and effective before recommending or implementing lethal methods. However, non-lethal methods would not always be applied as a first response to each damage problem. The most appropriate response could often be a combination of non-lethal and lethal methods, or there could be instances where application of lethal methods alone would be the most appropriate strategy.

⁵ A complete list of chemical and non-chemical methods available for use under the identified alternatives, except the alternative with no monkey damage management (Alternative 3), can be found in Appendix D of the EA (USDA 2008). However, listing methods neither implies that all methods will be used by WS to resolve requests for assistance nor does listing of methods imply that all methods will be used to resolve every request for assistance.

Alternative 2 – Technical Assistance Only

This alternative would only allow WS and cooperating agencies to provide technical assistance and make recommendations to individuals or agencies requesting monkey damage management in the Commonwealth. Some loaning or providing of equipment could occur under this alternative, such as providing of live-traps or exclusionary devices. The DNER and PRDA would continue to maintain authority over the take and possession of the monkeys under The New Wildlife Act of Puerto Rico (Law #241). Technical assistance only would place the immediate burden of operational damage management work on property owners. Technical assistance would occur by providing interested cooperators with information and technical advice on the use of methods available to alleviate or prevent monkey damage.

Alternative 3 – No Monkey Damage Management in Puerto Rico

This alternative would result in no assistance from WS and cooperating agencies in reducing monkey damage in the Commonwealth. The DNER and the PRDA would not permit any monkey damage management activities to occur in Puerto Rico under this alternative. Those requesting assistance would be provided with information on cultural practices and exclusion but no demonstration, site visits, or loaning of equipment would occur under this alternative. Since damage management activities would not be permitted by Commonwealth authority, those experiencing damages or threats would be limited to dispersal, harassment, or exclusionary techniques that would not involve the taking of monkeys.

VII. ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

Additional alternatives were also evaluated but not considered in detail in the EA (USDA 2008). The alternatives analyzed but not in detail include:

- Trap, Sterilize, and Release (TSR)
- Trap and Relocate Back into the Wild
- Use of Non-lethal Methods Only
- Use of Non-lethal Methods before Lethal Methods
- Use of Lethal Methods Only
- Establish a Harvest Season on Monkeys in Puerto Rico

VIII. DECISION AND RATIONALE

Based on the analyses of the issues and the alternatives developed to address those issues in the EA, including individual and cumulative impacts of those alternatives, the following decision has been reached:

Decision

I have carefully reviewed the EA prepared for this proposal and the input from the public involvement process. I find the proposed program to be environmentally acceptable, addressing the issues and needs while balancing the environmental concerns of management agencies, landowners, advocacy groups, and the public. The analyses in the EA adequately addresses the identified issues which reasonably confirm that no significant impact, individually or cumulatively, to wildlife populations or the quality of the human environment are likely to occur from the proposed action, nor does the proposed action constitute a major federal action. Therefore, the analysis in the EA remains valid and does not warrant the completion of an Environmental Impact Statement.

Based on the EA, the issues identified are best addressed by selecting Alternative 1 (Proposed Action/No Action) and applying the associated mitigation measures discussed in Chapter 3 of the EA. Alternative 1 successfully addresses (1) monkey damage management using a combination of the most effective methods and does not adversely impact the environment, property, human safety, and/or non-target species, including threatened and endangered species; (2) it offers the greatest chance of maximizing effectiveness and benefits to resource owners and managers while minimizing cumulative impacts on the quality of the human environment that might result from the program's effect on target and non-target species populations; (3) it presents the greatest chance of maximizing net benefits while minimizing adverse impacts to public health and safety; and (4) it offers a balanced approach to the issues of humaneness and aesthetics when all facets of those issues are considered. Further analysis would be triggered if changes occur that broaden the scope of monkey damage management activities in the Commonwealth, that affect the natural or human environment, or from the issuance of new environmental regulations. Therefore, it is my decision to implement the proposed action (Alternative 1) as described in the EA.

Finding of No Significant Impact

Based on the analyses provided in the EA, there are no indications that the proposed action (Alternative 1) will have a significant impact, individually or cumulatively, on the quality of the human environment. I agree with this conclusion and therefore, find that an Environmental Impact Statement should not be prepared. This determination is based on the following factors:

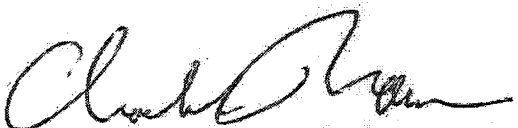
1. Monkey damage management as conducted by WS and cooperating agencies in the Commonwealth is not regional or national in scope.
2. The proposed action would pose minimal risk to public health and safety. Risks to the public from many of the methods described in the EA were determined to be low in a formal risk assessment (USDA 1997).
3. There are no unique characteristics such as park lands, prime farm lands, wetlands, wild and scenic areas, or ecologically critical areas that would be significantly affected. Built-in mitigation measures that are part of WS' standard operating procedures and adherence to laws and regulations will further ensure that WS' activities do not harm the environment.
4. The effects on the quality of the human environment are not highly controversial. Although there is some opposition to wildlife damage management, this action is not highly controversial in terms of size, nature, or effect.
5. Based on the analysis documented in the EA and the accompanying administrative file, the effects of the proposed damage management program on the human environment would not be significant. The effects of the proposed activities are not highly uncertain and do not involve unique or unknown risks.
6. The proposed action would not establish a precedent for any future action with significant effects.
7. No significant cumulative effects were identified through this assessment. The EA analyzed cumulative effects of WS' monkey damage management on target and non-target species populations and concluded that such impacts were not significant for this or other anticipated actions to be implemented or planned within the Commonwealth of Puerto Rico.

8. The proposed activities would not affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, nor would they likely cause any loss or destruction of significant scientific, cultural, or historical resources.
9. WS has determined that the proposed program would not adversely affect any federal or Commonwealth listed threatened or endangered species. This determination is based upon concurrence from the USFWS that the program will not likely adversely affect any threatened or endangered species in the Commonwealth.
10. The proposed action would be in compliance with all federal, Commonwealth, and local laws.
11. No significant cumulative effects were identified by this assessment or other actions implemented or planned within the area.

Rationale

The rationale for this decision is based on several considerations. This decision takes into account public comments, social/political and economic concerns, public health and safety, and the best available science. The foremost considerations are that: 1) monkey damage management will only be conducted by WS and cooperating agencies at the request of landowners/managers, 2) management actions are consistent with applicable laws, regulations, policies and orders, and 3) no adverse impacts to the environment were identified in the analysis. As a part of this Decision, the WS program in the Commonwealth of Puerto Rico will continue to provide effective and practical technical assistance and direct management techniques that reduce damage.

Copies of the EA are available upon request from USDA/APHIS/WS, 2820 East University Avenue, Gainesville, Florida 32641 or by visiting the APHIS website at http://www.aphis.usda.gov/wildlife_damage/nepa.shtml.



Charles S. Brown, Eastern Regional Director
USDA/APHIS/WS

8/29/08

Date

Literature Cited:

González-Martínez, J. 1995. Ecology of the introduced free-ranging patas and rhesus monkeys of Southwestern Puerto Rico. Ph.D. Thesis, University of Colorado-Boulder. 158 pp.

The Wildlife Society. 1992. Conservation policies of The Wildlife Society: A stand on issues important to wildlife conservation. The Wildlife Society, Bethesda, Md. 24pp.

USDA. 1997. Animal Damage Control Program - Final Environmental Impact Statement - Revised October 1997. USDA/APHIS/WS-Operational Support Staff, 4700 River Road, Unit 87, Riverdale, MD 20737.

USDA. 2008. Environmental Assessment: Managing damage and threats associated with invasive patas and rhesus monkeys in the commonwealth of Puerto Rico. USDA/APHIS/WS, 2820 East University Avenue, Gainesville, Florida 32641.

APPENDIX A

RESPONSES TO COMMENTS ON THE ENVIRONMENTAL ASSESSMENT: MANAGING DAMAGE AND THREATS ASSOCIATED WITH INVASIVE PATAS AND RHESUS MONKEYS IN THE COMMONWEALTH OF PUERTO RICO

The following are WS' responses to comments received during the public involvement period as part of the scoping process during the development of the EA. The public involvement process was discussed in Section II above.

Comment 1 – Establish a monkey hunting season with a bounty in Puerto Rico

The New Wildlife Act of Puerto Rico (Law #241) defines the protection of wildlife, including monkeys, and places regulatory control of managing all wildlife in the Commonwealth with the Puerto Rico Department of Natural and Environmental Resources (DNER). The New Wildlife Act of Puerto Rico (Law #241) is discussed in Appendix B of the EA. The establishment of a hunting season and the payment of money for killing monkeys (bounty) would occur under the authority and direction of the DNER pursuant to the New Wildlife Act of Puerto Rico.

The establishment of a hunting season for monkeys was considered as an alternative to meet the need for reducing damages and threats associated with rhesus and patas monkeys in Puerto Rico in section 3.3.6 of the EA. However, a hunting season was not considered in detail in the EA primarily due to the risks to human safety associated with handling monkeys. Risks to human safety associated with handling monkeys were described in section 1.3.1 of the EA.

Many diseases known to occur in monkeys are transmissible to humans. Although many diseases can occur in monkey populations, of concern in Puerto Rico is the high incidence of rhesus monkeys that are positive for the B-virus. The B-virus is nearly 80% fatal in humans when contracted (Huff and Barry 2003, Jensen et al. 2004). Contact with blood and other bodily fluids when handling monkeys harvested during a hunting season is likely which increases the risks of disease transmission.

In addition to the concerns of disease transmission, a hunting season was not considered in detail in the EA since hunting would not necessarily address specific damages or threats and could lead to the dispersal of monkeys to other areas of Puerto Rico. Monkey populations could be reduced or stabilized under a hunting season but the extent that specific damage incidents would be reduced would be variable.

Since bounties often require proof of harvest to receive payment, any proof required would likely involve removing a body part or providing the carcass as evidence. The additional handling of the monkey carcass to remove a body part or to transport a carcass increases the risk of disease transmission to the handler and to others. Bounties are also generally not effective in reducing damage since those monkeys causing damage may not be specifically targeted. No effective process exists to prevent the collection of bounties for monkeys that are not associated with causing damage. The incentive of a bounty could also lead to the constant pursuit of monkeys resulting in dispersal of monkeys to other areas of Puerto Rico. Bounties could also encourage private individuals to live-capture and transport monkeys to establish monkey populations in other parts of Puerto Rico where monkeys are not currently present to allow the take of monkeys for the collection of a bounty. Bounties are associated with hunting seasons, which was discussed in the EA, and therefore, was not considered in detail in the EA.

Comment 2 – Lack of long-term strategy to eliminate or reduce monkey-human interactions

The proposed integrated approach to managing monkey damage in the Commonwealth is discussed in section 3.2.1 of the EA. The objective of the proposed action is to minimize monkey related damages that are occurring in the Commonwealth and to reduce threats to human safety associated with invasive monkeys. To achieve the objective, cooperating agencies would continue to respond to requests for assistance with a minimum of technical assistance, and when funding is available, with operational damage management. An adaptive approach to integrating methods allows for the most practical and effective methods to be employed to resolve a request for assistance as determined by a site-specific evaluation using standard decision models. Decision models are also discussed in section 3.2.1 of the EA. Therefore, the long-term strategy of the proposed action is to continue to respond to requests for assistance to manage damage associated with invasive monkeys in the Commonwealth using an integrated approach that is adapted to each individual request for assistance.

As discussed in section 4.2.1 of the EA, the DNER has management authority over wildlife species, including monkeys. The number of monkeys taken by cooperating agencies will be provided to the DNER for incorporation into management objectives for monkeys in the Commonwealth. Since the DNER regulates the take of monkeys through the issuance of permits, any reduction in the population of monkeys would occur at the direction of the DNER. The DNER currently views any reduction in the populations of invasive monkeys as being beneficial to the native environment. Therefore, the long-term objective of the DNER could include the suppression or complete removal of monkeys from Puerto Rico.

Comment 3 – Use of leghold⁶ traps is of great concern with respect to animal welfare

The methods available for use to manage damage and threats associated with patas and rhesus monkeys in Puerto Rico were described and discussed in Appendix D of the EA. The issue of humaneness and animal welfare, as it relates to the killing or capturing of wildlife was discussed in section 2.3.4, section 3.4.1, section 3.5.4, section 4.2.4, section 4.3.4, and Appendix D of the EA.

In section 2.3.4, WS and cooperating agencies acknowledge the complexity and importance of humaneness and animal welfare when addressing monkey damage. Minimization measures and operating procedures intended to alleviate pain and suffering were discussed in section 3.4.1 and section 3.5.4 of the EA, including a daily check requirement and the use of trap monitors. Minimization measures and standard operating procedures are intended to minimize the amount of time monkeys are restrained which will minimize suffering and ultimately minimize distress. As stated in section 4.2.4 and Appendix D of the EA, all steel-jawed foothold traps will be padded to minimize injuries. The commenter cites position statements of the American Animal Hospital Association (2008) and the American Veterinary Medical Association (2008) opposing the use of steel-jawed foothold traps for capturing wildlife. However, neither position statements make any reference to opposing padded traps. The American Veterinary Medical Association position statements specifically states “...*unmodified steel jawed leghold traps.*”

The enclosed foothold traps described in the EA are those that require the target wildlife to reach inside the trap to pull the trigger to activate, similar to those described in the Best Management Practices for trapping raccoons in the United States (International Association of Fish and Wildlife Agencies 2006). Although the restraining mechanism in enclosed foothold traps are not padded, the minimization measures and standard operating procedures discussed in section 3.4.1 and section 3.5.4 of the EA are

⁶The commenter used the term “leghold” to describe open-faced steel jawed traps that are intended to capture wildlife by the foot and not the leg. The EA uses the term “foothold” to better describe the intent of the trap to capture the target animal by the foot. For the purposes of preventing confusing, the use of “leghold” and “foothold” will be used synonymously between this response and the EA.

intended to reduce the distress of the animal associated with the use of any of the methods that restrain wildlife.

Comment 4 – Incorrect Assertion that “padded” leghold traps would “minimize injury”

The commenter appears to question the use of the phrase “minimize injury” when associated with evaluations of the padded foothold traps cited within the EA, particularly with the evaluation of injuries to coyotes from capture and being restrained by different foothold traps conducted by Phillips et al. (1996). However, the EA makes no reference to “minimize injury” with regard to the Phillips et al. (1996) citation. The Phillips et al. (1996) citation in the EA only makes reference to the conclusion by the authors of the article that padded foothold traps can be effective in capturing coyotes while producing only minor leg injuries. Phillips et al. (1996) concluded “...*padded jaws are the most significant trap modification to substantially reduce foot injuries to captured coyotes*”. The commenter further cites additional publications as evidence that padded foothold traps do not “minimize injury”. The commenter cites publications by Olsen et al. (1986), Olsen et al. (1988), and Onderka et al. (1990) in which the authors evaluate injuries to wildlife associated with being captured and restrained in foothold traps, including padded foothold traps. Olsen et al. (1986) concluded “*All models of padded foothold traps reduced but did not eliminate trap-related foot injuries in coyotes and kit foxes*”. Olsen et al. (1988) found that “...*padded traps can substantially reduce limb injury to coyotes, bobcats, red and gray foxes, and raccoons compared to injuries from standard foothold traps*.” Onderka et al. (1990) stated that padded foothold traps were “*vastly superior*” based on their research to unpadded foothold traps for minimizing injury.

The EA makes no reference to padded foothold traps posing no risk of injury to captured wildlife. The EA acknowledges that risks of injury still occur from the use of padded foothold traps through the use of the phrase “minimize injuries” which implies the risk of injuries does exist. However, based on the research cited, the severity and rate of injury associated with unpadded foothold traps can be reduced or minimized when padded traps are used. In addition, the use of minimization measures and standard operating procedures discussed in the EA (see sections 3.4.1 and 3.5.4), should further reduce the risks of injuries from occurring to monkeys live captured and restrained by padded foothold traps.

The commenter also makes reference to the use of the “taos lightning” spring kit that was discussed in the EA for possible use on padded foothold traps to increase capture efficiency and further reduce risks of injury to captured wildlife. Padded foothold traps can be modified by adding the “taos lightning” spring kit which allows the trap lever to be compressed using two coil springs instead of one which increases the clamping force of the trap. Increasing the clamping force of a trap can increase the capture rate of padded traps. By increasing the clamping force, the padded jaws further prevents movement of the foot which can reduce the risks of injury while restrained (Gruver et al. 1996). However, the commenter cites a publication by Kamler et al. (2000) that cites increased risks of injury to wildlife associated with the use of “taos lightning” spring kits, particularly to raccoons when compared to non-modified traps. Kamler et al. (2000) found that capture rates of coyotes were higher using the spring kit compared to unmodified foothold traps. In regards to raccoons, Kamler et al. (2000) classified all injuries occurring to raccoons live-captured in padded foothold traps modified with spring kits as “*self-mutilation of captured limb*”. The publication further states that injuries to raccoons were self-imposed and were not inflicted by the modified foothold trap. The use of padded foothold traps to capture monkeys and the potential use of spring kits to modify padded foothold traps for higher capture rates does not completely eliminate the risk of injury associated with the use of those types of traps. However, the use of padded foothold traps and spring kits, in addition to the minimization measures discussed in Chapter 3, can further reduce the risks and rate of injury to captured wildlife.

Comment 5 – Concern that monkeys will not be subject to the provisions of the Animal Welfare Act

As stated in Appendix B of the EA, the Animal Welfare Act requires that minimum standards of care and treatment be provided for certain animals bred for commercial sale, used in research, transported commercially, or exhibited to the public. Individuals who operate facilities in these categories must provide their animals with adequate care and treatment in the areas of housing, handling, sanitation, nutrition, water, veterinary care, and protection from extreme weather and temperatures. The AC program administers the Animal Welfare Act, its standards, and its regulations. AC was part of the interdisciplinary team that was consulted with during the development of the EA to ensure compliance with the Act and to identify appropriate methods for capture of monkeys.

Since the Act provides standards for the care and treatment of certain animals that are available for commercial sale, used in research, transported commercially, or exhibited to the public, the handling and transportation of monkeys for damage management purposes are not subject to the Animal Welfare Act. However, monkeys relinquished to Puerto Rico authorities as described in the EA may be subject to provisions of the Act. If monkeys relinquished to Puerto Rico authorities are held for commercial sale, used in research, transported commercially, or exhibited to the public, then the provisions of the Act apply. Compliance with the Act would be the responsibility of the DNER and/or the PRDA.

Comment 6 – Overstatement of the threat of disease transmission associated with monkeys

The need for action was addressed in section 1.3 of the EA that describes the need to alleviate damage to agricultural resources, natural resources, property, and the need to reduce threats to human safety associated with a non-native population of patas and rhesus monkeys in the Commonwealth. The need to reduce threats to human safety was specifically addressed in section 1.3.1 of the EA.

The commenter states that risks to human safety addressed in the EA associated with monkeys are unrealistic and unjustified. The commenter further states that the risks to human safety from monkeys are “*potential*” as opposed to “*real*”, using the discussion of the B-virus in the EA as an example of the overstatement of the threat to human safety. The commenter states that the B-virus may not be available in the saliva or blood for transmission even if the monkey tests positive for the virus. Shedding of the virus (present in bodily fluids of monkeys) can occur when monkeys are stressed. Since the shedding of the virus occurs when the monkey is stressed, which can occur during the handling of monkeys in the laboratory, most documented cases of transmission occur in the laboratory from monkeys handled by workers. All the statements presented by the commenter were addressed in section 1.3.1 of the EA, including the latency of the B-virus, the shedding of the virus when stress occurs, and that most exposures occur in laboratory conditions.

The EA in section 1.3.1 lists those diseases known to occur in monkeys that are transmissible to humans and clearly states the risks associated with those diseases. The second sentence of section 1.3.1 of the EA states “*Most primate disease exposures are to laboratory researchers and rhesus pet owners*”. The EA further states “*Most risk assessments and documented transmissions have occurred at research facilities and few studies have been conducted to assess risks associated with wild populations of rhesus monkeys*” and “*...historically few disease issues have emerged from the monkeys in southwest Puerto Rico*”. The EA describes the primary route of exposure to humans as occurring from infected monkeys through bites and scratches.

The potential for disease transmission is defined in the first paragraph of section 1.3.1 in the EA which states:

“*...as invasive monkey populations expand in Puerto Rico, more people are encountering monkeys which leads to an increase in the possibility of disease transmission. The amount of crop damage occurring as*

monkeys expand has lead to an increase in the employment of damage management methods by local agricultural producers to reduce or alleviate monkey damage to crops which can increase the chance of disease transmission. There are also reports of an increase in the illegal trapping of monkeys for sale as exotic pets which could also increase the possibility of exposure (Jensen et al. 2004). Trapping and confinement can increase stress in monkeys leading to the shedding of reactivated latent viruses (Jensen et al. 2004)."

The commenter dismisses the risk monkeys pose to human safety as unjustified and unrealistic. However, as is indicated in section 1.3.1 of the EA, there is a high incidence of free ranging rhesus monkeys in Puerto Rico that are seropositive for the B-virus. On the Islet Santiago, 82% of the rhesus monkeys sampled in 1967 were seropositive for the B-virus. The National Institute for Occupational Safety and Health (NIOSH) (2001) recommends that all macaques be treated as potentially infectious. Since the 1930s, 43 human deaths have been reported from exposure to B-virus (NIOSH 2001, Engel et al. 2002). Once contracted, the B-virus is nearly 80% fatal in humans (Huff and Barry 2003, Jensen et al. 2004).

The EA does not state that disease transmission will occur but only that the potential for disease transmission can increase as monkey encounters increase. The EA only discusses those diseases that are known to occur in monkeys that are transmissible to humans. The EA does not state that transmission of those diseases will occur but only that the potential for disease transmission exists. The last sentence in section 1.3.1 of the EA states "*The threat of disease transmission from non-human primates to humans remains relatively low but does not decrease or invalidate the concerns of health officials of possible exposure of humans to enzootic diseases from encounters with monkeys.*"

Comment 7 – Exaggeration of the risks of rabies transmission from monkeys to humans in the EA

As described in section 1.3.1 of the EA, the primary source of rabies in Puerto Rico is the Indian mongoose (*Herpestus auropunctatus*) with concerns being raised that interaction between the mongoose and the monkeys could lead to the transfer of the rabies virus into the monkey population. The EA does not state that rabies is endemic in the monkey population nor that transmission of the rabies virus to monkeys will occur. However, since the rabies virus can be found in mongoose populations in the Commonwealth, the potential for monkeys to be exposed to the rabies virus exists. If the rabies virus becomes endemic in the monkey population in Puerto Rico, the risks of human exposure could also increase as interactions between people and monkeys increases.

Comment 8 – Incorrect use of the term "euthanasia" in the EA

The use of the word "euthanasia" in the EA conforms to the American Veterinary Medical Association definition of the term. The American Veterinary Medical Association defines euthanasia as "...the act of inducing humane death in an animal" and "... the technique should minimize any stress and anxiety experienced by the animal prior to unconsciousness" (American Veterinary Medical Association 2007).

Comment 9 – Incorrect conclusion about or misrepresentation of cited references

The commenter makes reference to several citations used to document the statement that "*...sterilized cats that do not spend any time on courting and mating are left with more time to hunt than non-sterilized cats and therefore, continue to remain as potential reservoirs of animal and human disease, a social nuisance, and continue to hunt and kill protected species*" which was footnoted in the EA to provide evidence that monkeys, like any free-ranging animal, that are sterilized (unable to reproduce) and released are still capable of causing damage and posing threats to human safety. Since most trap, sterilize, and release literature deals with feral cats, the use of the footnote was to demonstrate that any animal that is sterilized

and released is capable of continuing to cause damage and pose threats. The citations used in the footnotes were Brickner (2003), Levy et al. (2003), Barrows (2004), and Jessup (2004) which document that cats that are sterilized and released often are less aggressive in mating behavior compared to unsterilized cats.

Bricker (2003) states “...castrated cats that don’t spend any time on courting and mating are left with more time to hunt than non-castrated cats” while Levy et al. (2003) observed sterilized cats showed “Minimal territorial activity” and “...aggressive encounters between cats were usually limited to enforcement of feeding order.” Barrows (2004) concluded “A TNR [trap, neuter, and release] cat cannot reproduce. However, it remains an ecological threat to native species, is a potential reservoir of animal and human diseases, and may be a social nuisance”. Jessup (2004) further states that “Trap-neuter-return programs that release thousands of cats to prey on native wildlife, if adjudicated, could result in similar financial consequences” in reference to the financial liability of people associated with cats that are released and prey upon protected wildlife species. Therefore, there is a clear connection that sterilized cats often lose their aggressive behavior toward other cats associated with mating and that those cats continue to prey upon native wildlife and pose threats to human safety. The situation with feral cats provides further evidence that monkeys sterilized and released will continue to cause damage and pose threats to human safety despite any differences in the two groups.

The commenter further makes reference to the Kapsalis (1985) and the Laudenslager et al. (1999) citations in section 1.3.1 of the EA that were used to document that trapped and/or relocated monkeys can be stressed and act aggressive. The commenter stated that the Kapsalis (1985) and the Laudenslager et al. (1999) document stress and aggressive behavior toward other monkeys when captured or relocated and that the EA incorrectly implies monkeys become more aggressive toward humans. However, in the context of the preceding discussion in that section of the EA, the discussion of stress and aggressive behavior associated with trapped and/or relocated monkeys was to demonstrate those instances that could trigger latent virus to be shed within the monkeys which would increase risks to humans handling monkeys that are trapped and/or relocated with unfamiliar monkeys.

The commenter also stated that the citation in section 3.3.1 of the EA incorrectly characterizes the position of the American Veterinary Medical Association as opposing trap, sterilize, and release programs. The commenter goes on to state that the American Veterinary Medical Association “neither endorses nor opposes appropriately managed cat colony programs” (American Veterinary Medical Association 2005). As stated in section 3.3.1 of the EA, the “...AVMA [American Veterinary Medical Association] oppose[s] TSR [trap, sterilize, and release] programs based on health concerns and threats”. Review of the citation provided by the commenter reveals that “The AVMA [American Veterinary Medical Association] opposes placement of managed cat colonies...in any area that could threaten at-risk wildlife or in areas that may pose a zoonotic risk to the public” (American Veterinary Medical Association 2005). The citation provided by the commenter confirms the statement in the EA that the American Veterinary Medical Association opposes managed colonies that pose a threat to human safety or other wildlife.

Comment 10 - A change in the behavior of people not advocated sufficiently in the EA

The commenter expressed that modification of human behavior toward monkeys was not sufficiently discussed in the EA. Specifically, the commenter identifies the trapping of monkeys as pets should be made illegal, that penalties should occur for feeding monkeys, and that monkeys should be discouraged from entering into human environments.

As the EA states, monkeys in Puerto Rico are shy and elusive and have not formed a commensal relationship with humans although there is risk of commensalism occurring (see section 1.3 and section

1.3.4 of the EA). Commonwealth of Puerto Rico Regulation 7399 and Commonwealth of Puerto Rico Regulation 6765 both classify rhesus and patas monkeys as an invasive species in the Commonwealth (see Appendix B). Those regulations prohibit the introduction, importation, possession, acquisition, sale, or transfer of monkeys, with exceptions for government agencies and primate facilities. Educational efforts and human behavior modification was also discussed in the EA (see section 3.2.1 and Appendix D). Through educational efforts of the cooperating agencies, the public will be made aware of the importance of avoiding contact with monkeys in the Commonwealth.

Comment 11 – The trap, sterilize, and release alternative should have been analyzed in detail

As stated in section 3.3.1 of the EA, a trap, sterilize, and release alternative was not considered in detail in the EA due to the “...continued threat to human safety created by TSR [trap, sterilize, and release] programs and the continued threat to T&E [threatened and endangered] wildlife and native wildlife in general, this alternative will not be considered further.” Since sterilized animals are released back into the wild, those wildlife continue to pose threats to human safety and continue to cause damage, especially if the species is long-lived, such as monkeys. As the EA further states, to be completely effective, sterilization would have to occur to a majority of the individuals in a population to effectively induce a decline in the population through attrition which would likely occur over several years depending on the number of individuals sterilized. Since current methodologies limit sterilization of monkeys to invasive procedures (no chemosterilants are available for use), live-capture of monkeys must occur. The EA notes in section 3.3.1 and Appendix D that members of monkey troops tend to become wary and shy of traps once trapping of individuals begins. Thus, members of troops may become very difficult to live-capture to perform sterilization procedures.

Very little information is available specifically addressing trap, sterilize, and release programs involving patas and rhesus monkeys in Puerto Rico. Much of the current research conducted on trap, sterilize, and release programs has occurred with feral cats. However, many of the over-riding issues of trap, sterilize, and release programs are relevant no matter the species of animal discussed. For example, trap, sterilize, and release programs cause a population reduction over time no matter the species targeted which does little to address damage occurring and threats to human safety, especially over the short-term. Trap shyness is also a concern no matter of the species targeted since the inability to capture individuals may influence the effectiveness of reducing populations through a trap, sterilize, and release program. Also addressed in the EA, is the opposition by many organizations to trap, sterilize, and release programs when human safety is threatened which can occur no matter the species targeted by such a program. Other concerns arise when considering the legality of trap, sterilize, and release programs given the documented damage caused by target species, especially to native wildlife (Barrows 2004, Levy and Crawford 2004, Jessup 2004). Some have questioned whether such programs are violating the Migratory Bird Treaty Act and the Endangered Species Act because released animals may continue to kill migratory birds and/or endangered species (Barrows 2004, Levy and Crawford 2004, Jessup 2004). Since monkeys are known to feed on native plants and wildlife (see section 1.3.3 of the EA), this issue is relevant despite the references to cats used in the literature cited. Therefore, major issues associated with trap, sterilize, and release programs are not unique to cats but can be applied to any target wildlife species and the use of references in the EA to emphasize those universal issues is justified.

Despite the commenter’s assertion that the risk of disease transmission addressed in the EA is unjustified and unrealistic, the transmission of diseases from monkeys to humans has been documented to occur. The B-virus, which is known to occur in free-ranging monkeys in Puerto Rico, has resulted in the death of 43 people since the 1930s (NIOSH 2001, Engel et al. 2002). Most documented infections have occurred among laboratory researchers and pet owners. There has been one documented case of ocular exposure to B-virus while handling a macaque. The researcher died, even with treatment for B-virus exposure (NIOSH 2001). To be performed properly, sterilization procedures must be performed under laboratory

conditions and since laboratory exposures to the B-virus have occurred previously, the risks of exposure to disease by handling monkeys slated to be sterilized are not overstated in the EA. The risks to personnel who handle monkeys under laboratory conditions are still at risks of disease transmission despite precautions to prevent such transmission. The EA makes no assertions that transmission will occur but only that handling monkeys increases the risks of disease transmission. If monkeys are never handled nor encountered, then the risks of diseases transmission to an individual from a monkey is practically non-existent. However, the more monkeys are handled or encountered, the greater the risk of exposure becomes.

Comment 12 – Alpha-chloralose is not approved for use in non-human primates

The commenter incorrectly labels alpha-chloralose as a “poison”. Alpha-chloralose, as proposed for use in the EA, is a central nervous system depressant used as an immobilizing agent that is currently used by WS to live capture pigeons, waterfowl, and other birds under an Investigation New Animal Drug permit issued by the U.S. Food and Drug Administration. The commenter correctly states that alpha-chloralose is not approved for use in non-human primates which the EA acknowledges in section 4.2.3.1 of the EA and in Appendix D. However, given the immobilizing capabilities associated with properly administered alpha-chloralose, the National Wildlife Research Center may evaluate the use of the drug for immobilizing monkeys in Puerto Rico. Alpha-chloralose is most often administered inside a bait as a tablet or formulated on bait that is provided to a target individual through hand baiting. Alpha-chloralose, if determined to be effective and humane, could be used by WS to immobilize live-captured monkeys inside traps instead of using jabsticks or darts to administer immobilizing chemicals.

Comment 13 – Use of violent methods will increase trap shyness and aversion

The commenter states that violent methods will lead to an increase in monkeys showing aversion to traps. The commenter specifically mentions foothold traps as a violent method in the context of this comment. The EA acknowledges through cited literature that trap shyness has been documented during other trapping efforts (see Appendix D of the EA). Even the use of live-traps can cause trap shyness. The proposed action in the EA allows for those methods discussed in Appendix D of the EA to be used in an adaptive, integrated approach to resolving damage and threats. An integrated approach provides the cooperating agencies an array of methods to use to alleviate damage and threats to human safety. The availability of a variety of methods allows methods to be employed individually or in combination to effectively address requests for assistance to manage damage and threats associated with monkeys. When methods are integrated to achieve effective resolution of the damage request, aversion and trap shyness can be reduced. Reduction in trap shyness can occur because methods available are not limited to a single method and methods are not used repeatedly the same way. The use of a single method or several methods repeatedly, unchanging can lead to an aversion to the method which decreases the effectiveness of the trap. Therefore, limiting the available methods often leads to habituation or aversion to a particular method. Therefore, if a monkey troop shows aversion to a padded foothold trap then other methods could be used to live-capture monkeys.

Comment 14 – Use of inhuman methods will hurt the image of Puerto Rico and affect tourism

As discussed in section 2.3.4 and in section 4.2.4 of the EA, humaneness, in part, appears to be a person's perception of harm or pain inflicted on an animal. People may perceive the humaneness of an action differently. Some individuals believe any use of lethal methods to resolve damage associated with wildlife is inhumane because the resulting fate is the death of the animal. Others believe that certain lethal methods can lead to a humane death. Others believe most non-lethal methods of capturing wildlife to be humane because the animal is generally unharmed and alive. Still others believe that any disruption in the behavior of wildlife is inhumane. With the multitude of attitudes on the meaning of humaneness

and the varying perspectives on the most effective way to address damage and threats in a humane manner, agencies are challenged with conducting activities and employing methods that are perceived to be humane while assisting those persons requesting assistance to manage damage and threats associated with wildlife. The goal of WS and cooperating agencies is to use methods as humanely as possible to effectively resolve requests for assistance to reduce damage and threats to human safety.

As mentioned previously, some methods have been stereotyped as “humane” or “inhumane”. However, many “humane” methods can be inhumane if not used appropriately. For instance, a cage trap is generally considered by most members of the public as “humane”. Yet, without proper care, live-captured wildlife in a cage trap can be treated inhumanely if not attended to appropriately. The EA discusses minimization measures and standard operating procedures developed to minimize distress of monkeys when captured (see Chapter 3 of the EA).

The trapping of invasive monkeys in Puerto Rico for various reasons (i.e., research, economic damages) has occurred since monkeys were first known to have escaped from island research facilities, including the use of shooting. Research on monkeys has occurred in Puerto Rico since monkeys were first imported into the Commonwealth in 1938 for the establishment of research colonies (see section 1.3 of the EA). Primate research can often be controversial to many segments of society as evidenced by the many websites and organizations dedicated to stopping primate research. The breeding colony of rhesus monkeys on Cayo Santiago was established to conduct behavioral studies of monkeys and to provide other facilities with monkeys for biomedical research. Biomedical research can be a highly controversial issue. Therefore, controversial issues of humaneness potentially exist in Puerto Rico with the research being conducted on monkeys at research facilities.

Similar to the potential for controversy to arise from research being conducted at primate facilities in Puerto Rico, the potential also exists for controversy to arise from the use of methods during damage management activities, especially if those methods result in serious injuries to wildlife. The methods proposed for use in Appendix D in conjunction with minimization measures discussed in Chapter 3 of the EA are intended to reduce the incidence of injuries to captured wildlife and to minimize distress of animals restrained in live-traps. As discussed in Appendix D, the use of shooting would only occur in limited situations where other methods were deemed ineffective or unable to resolve damage occurring or threats to human safety. All opened-faced foothold traps will be padded to minimize injury of captured monkeys (see Appendix D). Although injuries can occur from any of the capture methods proposed, minimization measures are intended to reduce the incidents of injury and reduce distress of captured monkeys. The adherence to minimization measures assures consideration of the issue of humaneness that should not result in a negative image of Puerto Rico nor result in any impact to tourism.

Comment 15 – Implementation of conditioned taste aversion techniques for reducing damage

The commenter makes reference to the use of taste aversion techniques in conjunction with controlling the reproductive output of monkeys to manage populations. The reference to taste aversion was likely in reference to damage occurring to agricultural resources as a way to condition monkeys to not feed on susceptible crops in the Commonwealth instead of a way to reduce the size of the monkey population. However, no taste aversion chemical or products are currently available or registered to condition monkeys to avoid feeding on susceptible crops in Puerto Rico. In Addition, taste aversion techniques would only address damage occurring to agricultural resource and would not fully meet the need of reducing damages to property and natural resources. Taste aversion techniques would also not be applicable to reduce human safety threats.

If taste aversion products or techniques become available, the interagency team could evaluate the use of those methods as appropriate with federal, Commonwealth, and local laws and regulations.

Comment 16 – Violent methods used will disperse monkeys to other areas of Puerto Rico

The EA addresses the potential for methods to disperse monkeys to areas of Puerto Rico where they are not known to occur in section 2.4.7. The issue was identified during the development of the EA but was not analyzed in detail. The coordination of activities amongst cooperating agencies along with the limited use of methods that are likely to cause dispersal to naïve areas of Puerto Rico should ensure dispersal of monkeys does not occur. However, if dispersal occurs, coordination efforts between agencies will ensure those monkeys dispersed are identified and addressed when they cause damage or pose a threat to human safety.

Comment 17 – Violent methods will affect non-target species

The effects on non-target species' population, including threatened and endangered species was analyzed in detail in the EA (see section 2.3.2 of the EA). Chapter 4 of the EA analyzes the environmental consequences of each of the alternatives in comparison to determine the extent of actual or potential impacts on the issues. The issue of the effects on non-targets species populations was specifically addressed in section 4.2.2 of the EA. Based on the methods available for use to manage monkey damages, the impacts to non-target species are expected to be extremely low to non-existent. Cooperating agencies will annually monitor activities to ensure take of non-targets does not adversely affect species' populations. Minimization measures and standard operating procedures discussed in Chapter 3 of the EA are intended to minimize the capture of non-targets. Methods proposed are highly selective when used as intended which further minimizes risks to non-targets. Based on the analyses in the EA, no adverse affects are expected from the use of methods discussed in Appendix D of the EA.

LITERATURE CITED IN RESPONSE TO COMMENTS

- American Animal Hospital Association. 2008. Leghold traps position statement.
<https://secure.aahanet.org/eweb/DynamicPage.aspx?site=resources&webcode=referenceDetail&postKey=804b53e8-cc55-437a-9253-7c1232e12526>. Accessed on August 27, 2008.
- American Veterinary Medical Association. 2005. Free-roaming abandoned and feral cats.
http://www.avma.org/issues/policy/animal_welfare/feral_cats.asp. Accessed on August 27, 2008.
- American Veterinary Medical Association. 2007. American Veterinary Medical Association guidelines on euthanasia. American Veterinary Medical Association.
http://www.avma.org/issues/animal_welfare/euthanasia.pdf. Accessed on August 27, 2008.
- American Veterinary Medical Association. 2008. Trapping and steel-jawed leghold traps.
http://www.avma.org/issues/policy/animal_welfare/trapping.asp. Accessed on August 27, 2008.
- Barrows, P. L. 2004. Professional, ethical, and legal dilemmas of trap-neuter-release. *Journal of American Veterinary Medical Association*. 225: 1365-1369.
- Brickner, I. 2003. The impact of domestic cat (*Felis catus*) on wildlife welfare and conservation: a literature review. <http://www.tau.ac.il/lifesci/zoology/members/yom-tov/inbal/cats.pdf>. Accessed on August 27, 2008.
- Engel, G. A., L. Jones-Engel, M. A. Schillaci, K. G. Suaryana, A. Putra, A. Fuentes, and R. Henkel. 2002. Human exposure to herpesvirus B-seropositive macaques, Bali, Indonesia. *Emerging Infectious Diseases* 8: 789-795.

- Gruver, K. S., R. L. Philips, and E. S. Williams. 1996. Leg injuries to coyotes captured in standard and modified Soft Catch traps. *Proc. Vertebr. Pest. Conf.* 17: 91-93.
- Huff, J. L., and P. A. Barry. 2003. B-virus (*Cercopithecine herpesvirus 1*) infection in humans and macaques: potential for zoonotic disease. *Emerging Infectious Diseases* 9: 1-11.
- International Association of Fish and Wildlife Agencies. 2006. Best management practices – Trapping raccoons in the United States. http://www.fishwildlife.org/Furbearer/Aug%202006%20BMPs/Raccoons_update.pdf. Accessed on August 27, 2008.
- Jessup, D. A. 2004. The welfare of feral cats and wildlife. *Journal of American Veterinary Medical Association* 225: 1377-1382.
- Jensen, K., F. Alvarado-Remy, J. González-Martínez, E. Kraiselburd, and J. Rulluan. 2004. B-Virus and free-ranging macaques, Puerto Rico. *Emerging Infectious Diseases* 10: 494-496.
- Kamler, J. F., C. Richardson, and P. S. Gipson. 2000. Comparison of standard and modified soft catch traps for capturing coyotes, bobcats, and raccoons. *Ninth Wildlife Damage Management Conference Proceedings* 9: 77-84.
- Kapsalis, E. 1985. The status of a translocated troop from Cayo Santiago to a hill corral after one year. *Am. J. Primatol.* 8: 346. Abstract.
- Laudenslager, M. L., K. L. R. Rasmussen, K. C. M. Berman, A. A. Lilly, S. E. Shelton, N. H. Kalin, and S. J. Suomi. 1999. A preliminary description of responses of free-ranging rhesus monkeys to brief capture experiences: Behavior, endocrine, immune and health relationships. *Brain Behav. Immunol.* 13: 124-137.
- Levy, J. K., and P. C. Crawford. 2004. Humane strategies for controlling feral cat populations. *Journal of American Veterinary Medical Association* 225: 1354-1359.
- Levy, J. K., D. W. Gale, and L. A. Gale. 2003. Evaluation of the effect of a long-term trap-neuter-return and adoption program on a free-roaming cat population. *Journal of American Veterinary Medical Association* 222:42-46.
- National Institute for Occupational Safety and Health (NIOSH). 2001. Hazard ID: *Cercopithecine herpesvirus 1* (B Virus) infection resulting from ocular exposure. *Appl. Occup. Environ. Hyg.* 16: 32-34.
- Olsen, G. H., S. B. Linhart, R. A. Holmes, G. J. Dasch, and C. B. Clyde. 1986. Injuries to coyotes caught in padded and unpadded steel foothold traps. *Wil. Soc. Bull.* 14: 219-223.
- Olsen, G. H., R. G. Linscombe, V. L. Wright, and R. A. Holmes. 1988. Reducing injuries to terrestrial furbearers by using padded foothold traps. *Wil. Soc. Bull.* 16: 303-307.
- Onderka, D. K., D. L. Skinner, and A. W. Todd. 1990. Injuries to coyotes and other species caused by four models of footholding devices. *Wildl. Soc. Bull.* 18: 175-182.
- Phillips, R. L., K. S. Gruver, and E. S. Williams. 1996. Leg injuries to coyotes captured in three types of foot-hold traps. *Wildl. Soc. Bull.* 24: 260-263.